INDEX TO AUTHORS

ALLISON, J. B., and COLE, WILLIAM H. Stimulation of *Fundulus* by hydrochloric and fatty acids in fresh water, and by fatty acids, mineral acids, and the sodium salts of mineral acids in sea water, 803

ANSON, M. L., and MIRSKY, A. E. The equilibria between native and denatured hemoglobin in salicylate solutions and the theoretical consequences of the equilibrium between native and denatured protein, 399

— and —. The equilibrium between active native trypsin and inactive denatured trypsin, 393

— and —. The estimation of active native trypsin in the presence of inactive denatured trypsin, 159

— and —. The estimation of trypsin with hemoglobin, 151

—. See KUNITZ, ANSON, and NORTHROP, 365

ARNOLD, WILLIAM. The effect of ultraviolet light on photosynthesis, 135

—. The order of the Blackman reaction in photosynthesis, 145

—. See STIER, ARNOLD, and STANNARD, 383

BALDWIN, D. M. See KRUEGER and BALDWIN, 129, 499

BARKER, H. ALBERT. The effect of water content upon the rate of heat denaturation of crystallizable egg albumin, 21

BAUMBERGER, J. PERCY. Apparatus for the study of redox potential in biological systems, 1

BLINKS, L. R. Protoplasmic potentials in *Halicystis*. III. The effects of ammonia, 109

BONNER, JAMES. The action of the plant growth hormone, 63

BOYD, WILLIAM C., and HOOKER, SANFORD B. The influence of the molecular weight of antigen on the proportion of antibody to antigen in precipitates, 341

BROOKS, J. Bound water in muscle, 783

BULL, HENRY B. Some methodical errors which may arise in the determination of bound water, 83

CASTLE, E. S. The phototropic effect of polarized light, 751

—. The physical basis of the positive phototropism of *Phycomyces*, 49

—. The refractive indices of whole cells, 41

COBB, DORIS M. See FENN and COBB, 629

COLE, WILLIAM H. See ALLISON and COLE, 803

DAGGS, RAY G., and HALCRO-WARDLAW, H. S. The conversion of fat to carbohydrate in the germinating castor bean. II. The combustion respiratory quotient as determined by a modified oxycalorimeter, 303

DOUGHERTY, J. E. See KLEIBER and DOUGHERTY, 701

EDWARDS, THOMAS I., PEARL, RAYMOND, and GOULD, SOPHIA A. The growth and duration of life of *Celosia cristata* seedlings at different temperatures, 763
—. See PEARL, EDWARDS, and MINER, 687
EMERSON, ROBERT, and GREEN, LOWELL. Manometric measurements of photosynthesis in the marine alga *Gigartina*, 817

FENN, WALLACE O., and COBB, DORIS M. The potassium equilibrium in muscle, 629
FLEISCHMANN, WALTER, and RAND, CHARLES S. The influence of minimal narcotic doses on the respiration of erythrocytes, 791

GATES, FREDERICK L. The ultraviolet absorption spectrum of pepsin, 797
GERARD, R. W., and RUBENSTEIN, B. B. A note on the respiration of *Arbacia* eggs, 375
—. See RUBENSTEIN and GERARD, 677
GODDARD, DAVID R. See UBER and GODDARD, 577
GORTNER, ROSS AIKEN, and GORTNER, WILLIS ALWAY. The cryoscopic method for the determination of "bound water," 327
GORTNER, WILLIS ALWAY. See GORTNER and GORTNER, 327
GOULD, SOPHIA A. See EDWARDS, PEARL, and GOULD, 763
GREEN, LOWELL. See EMERSON and GREEN, 817

HALCRO-WARDLAW, H. S. See DAGGS and HALCRO-WARDLAW, 303
HECHT, SELIG, SHLAER, SIMON, and VERRIJP, CORNELIS D. Intermittent stimulation by light. II. The measurement of critical fusion frequency for the human eye, 237
HECHT, SELIG, and VERRIJP, CORNELIS D. Intermittent stimulation by light. III. The relation between intensity and critical fusion frequency for different retinal locations, 251
— and —. IV. A theoretical interpretation of the quantitative data of flicker, 269
— and WALD, GEORGE. The visual acuity and intensity discrimination of *Drosophila*, 517
HERSH, A. H. The time curve of facet determination in an ultrabar stock of *Drosophila melanogaster*, 487
HILL, S. E. See OSTERHOUT and HILL, 87, 99, 105
HOAGLAND, HUDSON. Electrical responses from lateral line nerves of fishes. III, 77
—. IV. The repetitive discharge, 195
HOOKER, SANFORD B. See BOYD and HOOKER, 341

JACQUES, A. G., and OSTERHOUT, W. J. V. The accumulation of electrolytes. VI. The effect of external pH, 727

KAMERLING, S. E. See OSTERHOUT and KAMERLING, 507
—. See OSTERHOUT, KAMERLING, and STANLEY, 445, 469
KLEIBER, M., and DOUGHERTY, J. E. The influence of environmental temperature on the utilization of food energy in baby chicks, 701
KRUEGER, A. P., and BALDWIN, D. M. The inactivation of bacteriophage by mercury bichloride; the reactivation of bichloride-inactivated phage, 129
— and —. The reversible inactivation of bacteriophage by bichloride of mercury, 499

KUNITZ, M., ANSON, M. L., and NORTHROP, JOHN H. Molecular weight, molecular volume, and hydration of proteins in solution, 365

— and NORTHROP, JOHN H. Inactivation of crystalline trypsin, 591

LONGSWORTH, LEWIS G. The theory of diffusion in cell models, 211

LORENZ, EGON. Search for mitogenetic radiation by means of the photoelectric method, 843

MINER, JOHN R. See PEARL, EDWARDS, and MINER, 687

MIRSKY, A. E. See ANSON and MIRSKY, 151, 159, 393, 399

MOONEY, M. GRACE. See WALKER, WINSLOW, and MOONEY, 349

MURLIN, JOHN R. The conversion of fat to carbohydrate in the germinating castor bean. I. The respiratory metabolism, 283

—. See PIERCE, SHELDON, and MURLIN, 311

MURLIN, WILLIAM R. See MURLIN, JOHN R., 283

NORTHROP, JOHN H. Absorption of pepsin by crystalline proteins, 165

—. Crystalline pepsin. VI. Inactivation by beta and gamma rays from radium and by ultraviolet light, 359

—. See KUNITZ, ANSON, and NORTHROP, 365

—. See KUNITZ and NORTHROP, 591

OSTERHOUT, W. J. V., and HILL, S. E. Anesthesia in acid and alkaline solutions, 99

— and —. Anesthesia produced by distilled water, 87

OSTERHOUT, W. J. V., and HILL, S. E. Reversible loss of the potassium effect in distilled water, 105

— and KAMERLING, S. E. The kinetics of penetration. VIII. Temporary accumulation, 507

—, —, and STANLEY, W. M. The kinetics of penetration. VI. Some factors affecting penetration, 445

—, —, and —. VII. Molecular *versus* ionic transport, 469

—. See JACQUES and OSTERHOUT, 727

PEARL, RAYMOND, EDWARDS, THOMAS I., and MINER, JOHN R. The growth of *Cucumis melo* seedlings at different temperatures, 687

—. See EDWARDS, PEARL, and GOULD, 763

PIERCE, H. B., SHELDON, DOROTHY E., and MURLIN, JOHN R. The conversion of fat to carbohydrate in the germinating castor bean. III. The chemical analysis, and correlation with respiratory exchange, 311

PONDER, ERIC. On Norris' theory for the shape of the mammalian erythrocyte, 617

RAND, CHARLES S. See FLEISCHMANN and RAND, 791

REINER, L. On the relation between toxicity, resistance, and time of survival, and on related phenomena, 409

RUBENSTEIN, B. B., and GERARD, R. W. Fertilization and the temperature coefficients of oxygen consumption in eggs of *Arbacia punctulata*, 677

—. See GERARD and RUBENSTEIN, 375

RUSHTON, W. A. H. Blair's "condenser theory" of nerve excitation, 481

SHEDLOVSKY, THEODORE, and UHLIG, HERBERT H. On guaiacol solutions. I. The electrical conductivity of sodium and potassium guaiacolates in guaiacol, 549
— and —. II. The distribution of sodium and potassium guaiacolates between guaiacol and water, 563
SHELDON, DOROTHY E. See PIERCE, SHELDON, and MURLIN, 311
SHLAER, SIMON. See HECHT, SHLAER, and VERRIJP, 237
SMITH, ELIZABETH R. B. Gelatinase and the Gates-Gilman-Cowgill method of pepsin estimation, 35
STANLEY, W. M. See OSTERHOUT, KAMERLING, and STANLEY, 445, 469
STANNARD, J. N. See STIER, ARNOLD, and STANNARD, 383
STIER, T. J. B., ARNOLD, WILLIAM, and STANNARD, J. N. A photoelectric densitometer for use with suspensions, 383

UBER, FRED M., and GODDARD, DAVID R. Influence of death criteria on the X-ray survival curves of the fungus, *Neurospora*, 577
UHLIG, HERBERT H. See SHEDLOVSKY and UHLIG, 549, 563

VERRIJP, CORNELIS D. See HECHT, SHLAER, and VERRIJP, 237
—. See HECHT and VERRIJP, 251, 269

WALD, GEORGE. See HECHT and WALD, 517
WALKER, H. H., WINSLOW, C.-E. A., and MOONEY, M. GRACE. Bacterial cell metabolism under anaerobic conditions, 349
WATKEYS, JEAN D. See MURLIN, JOHN R., 283
WINSLOW, C.-E. A. See WALKER, WINSLOW, and MOONEY, 349
WOLF, ERNST. Critical frequency of flicker as a function of intensity of illumination for the eye of the bee, 7
WRIGHT, CHARLES I. The diffusion of carbon dioxide in tissues, 657

INDEX TO SUBJECTS

ACID, hydrochloric, stimulation of *Fundulus* in fresh water, 803
— solutions, anesthesia in, 99
Acids, fatty, stimulation of *Fundulus* in fresh water, 803
—, —, — — *Fundulus* in sea water, 803
—, mineral, sodium salts, stimulation of *Fundulus* in sea water, 803
—, —, stimulation of *Fundulus* in sea water, 803
Albumin, egg, crystallizable, heat denaturation, effect of water content upon rate, 21
Alga, marine, *Gigartina*, manometric measurements of photosynthesis, 817
Alkaline solutions, anesthesia in, 99
Ammonia, effects on protoplasmic potentials in *Halicystis*, 109
Anaerobiosis, bacterial cell metabolism under conditions of, 349
Anesthesia in acid solutions, 99
— — alkaline solutions, 99
— produced by distilled water, 87
Antibody, proportion to antigen in precipitates, influence of molecular weight of antigen, 341
Antigen, molecular weight, influence on proportion of antibody to antigen in precipitates, 341
—, proportion to antibody in precipitates, influence of molecular weight of antigen, 341
Arbacia eggs, respiration, 375
— *punctulata*, fertilization and temperature coefficients of oxygen consumption, 677

BACTERIAL cell metabolism under anaerobic conditions, 349
Bacteriophage, inactivated by mercury bichloride, reactivation, 129, 499
Bean, castor, germinating, conversion of fat to carbohydrate, 283, 303, 311
Bee, eye, critical frequency of flicker as function of intensity of illumination, 7
Biological systems, apparatus for study of redox potential, 1
Blackman reaction, order in photosynthesis, 145
Blair's condenser theory of nerve excitation, 481

CARBOHYDRATE, conversion of fat to, in germinating castor bean, 283, 303, 311
Carbon dioxide diffusion in tissues, 657
Castor bean. *See* Bean.
Cell, bacterial, metabolism, under anaerobic conditions, 349
— models, theory of diffusion, 211
Cells, whole, refractive indices, 41
Celosia cristata seedlings, growth and duration of life at different temperatures, 763
Condenser theory, Blair's, of nerve excitation, 481
Conductivity, electrical, of sodium and potassium guaiacolates in guaiacol, 549
Cowgill-Gilman-Gates method of pepsin estimation, and gelatinase, 35

Cryoscopic method for determination of bound water, 327
Cucumis melo seedlings, growth at different temperatures, 687

DEATH criteria, influence on X-ray survival curves of fungus, *Neurospora*, 577
Densitometer, photoelectric, for use with suspensions, 383
Diffusion in cell models, theory, 211
Drosophila, *melanogaster*, ultrabar stock, time curve of facet determination, 487
—, visual acuity and intensity discrimination, 517

EGG albumin, crystallizable, heat denaturation, effect of water content upon rate, 21
Eggs, *Arbacia punctulata*, fertilization and temperature coefficients of oxygen consumption, 677
—, —, respiration, 375
Electrical conductivity of sodium and potassium guaiacolates in guaiacol, 549
— responses from lateral line nerves of fishes, 77
— — — lateral line nerves of fishes, repetitive discharge, 195
Electrolytes, accumulation, 727
Energy, food, in baby chicks, influence of environmental temperature on utilization, 701
Erythrocyte, mammalian, shape, Norris' theory, 617
—, respiration, influence of minimal narcotic doses, 791
Excitation, nerve, Blair's condenser theory, 481
Eye, bee, critical frequency of flicker as function of intensity of illumination, 7
—, human, measurement of critical fusion frequency, 237

FACET determination in ultrabar stock of *Drosophila melanogaster*, time curve, 487
Fat, conversion to carbohydrate in germinating castor bean, 283, 303, 311
Fatty acids, stimulation of *Fundulus* in fresh water, 803
— —, — — *Fundulus* in sea water, 803
Fertilization and temperature coefficients of oxygen consumption in eggs of *Arbacia punctulata*, 677
Fishes, lateral line nerves, electrical responses from, 77
—, — — —, electrical responses from, repetitive discharge, 195
Food energy in baby chicks, influence of environmental temperature on utilization, 701
Fowl, influence of environmental temperature on utilization of food energy in baby chicks, 701
Fundulus, stimulation by fatty acids in fresh water, 803
—, — — fatty acids in sea water, 803
—, — — hydrochloric acid in fresh water, 803
—, — — mineral acids in sea water, 803
—, — — sodium salts of mineral acids in sea water, 803
Fungus, *Neurospora*, influence of death criteria on X-ray survival curves, 577

GATES-GILMAN-COWGILL method of pepsin estimation, and gelatinase, 35
Gelatinase and Gates-Gilman-Cowgill method of pepsin estimation, 35
Germination, conversion of fat to carbohydrate in castor bean, 283, 303, 311

Gigartina, manometric measurements of photosynthesis, 817
Gilman-Cowgill-Gates method of pepsin estimation, and gelatinase, 35
Growth hormone, plant, action, 63
Guaiacol, electrical conductivity of sodium and potassium guaiacolates in, 549
— solutions, 549, 563
— and water, distribution of sodium and potassium guaiacolates between, 563

HALICYSTIS, protoplasmic potentials, 109
Heat denaturation of crystallizable egg albumin, effect of water content upon rate, 21
Hemoglobin, denatured and native, in salicylate solutions, equilibria between, and theoretical consequences of equilibrium between native and denatured protein, 399
—, estimation of trypsin, 151
—, native and denatured, in salicylate solutions, equilibria between, and theoretical consequences of equilibrium between native and denatured protein, 399
Hormone, plant growth, action, 63
Hydration of proteins in solution, 365
Hydrochloric acid, stimulation of *Fundulus* in fresh water, 803
Hydrogen ion concentration, external, effect on accumulation of electrolytes, 727

IONIC *versus* molecular transport in penetration, 469

KINETICS of penetration, 445, 469
— — —, temporary accumulation, 507

LIGHT, intermittent, stimulation by, measurement of critical fusion frequency for human eye, 237
—, —, — —, relation between intensity and critical fusion frequency for different retinal locations, 251
—, —, — —, theoretical interpretation of quantitative data of flicker, 269
—, polarized, phototropic effect, 751
—, ultraviolet, absorption spectrum of pepsin, 797
—, —, effect on photosynthesis, 135
—, —, inactivating crystalline pepsin, 359

MAMMALIAN erythrocyte, shape, Norris' theory, 617
Manometric measurements of photosynthesis in marine alga *Gigartina*, 817
Marine alga *Gigartina*, manometric measurements of photosynthesis, 817
Mercuric chloride-inactivated bacteriophage, reactivation, 129, 499
Metabolism, bacterial cell, under anaerobic conditions, 349
—, respiratory, germinating castor bean, conversion of fat to carbohydrate, 283
Mineral acids, sodium salts, stimulation of *Fundulus* in sea water, 803
— —, stimulation of *Fundulus* in sea water, 803
Mitogenetic radiation, search for by means of photoelectric method, 843
Molecular *versus* ionic transport in penetration, 469
— volume of proteins in solution, 365

Molecular weight of antigen, influence on proportion of antibody to antigen in precipitates, 341
— — — proteins in solution, 365
Muscle, bound water, 783
—, potassium equilibrium, 629

NARCOTIC doses, minimal, influence on respiration of erythrocytes, 791
Nerve excitation, Blair's condenser theory, 481
Nerves, lateral line, of fishes, electrical responses from, 77
—, — —, of fishes, electrical responses from, repetitive discharge, 195
Neurospora, influence of death criteria on X-ray survival curves, 577
Norris' theory for shape of mammalian erythrocyte, 617

OXIDATION-REDUCTION potential in biological systems, apparatus, 1
Oxycalorimeter, modified, determination of combustion respiratory quotient of germinating castor bean, 303
Oxygen consumption in eggs of *Arbacia punctulata*, temperature coefficients, and fertilization, 677

PENETRATION, kinetics, 445, 469
—, —, temporary accumulation, 507
Pepsin absorption by crystalline proteins, 165
—, crystalline, 359
— estimation, Gates-Gilman-Cowgill method, and gelatinase, 35
—, ultraviolet absorption spectrum, 797
Photoelectric densitometer for use with suspensions, 383
— method, used in search for mitogenetic radiation, 843
Photosynthesis, effect of ultraviolet light, 135
— in marine alga *Gigartina*, manometric measurements, 817
—, order of Blackman reaction, 145
Phototropic effect of polarized light, 751
Phototropism, positive, of *Phycomyces*, physical basis, 49
Phycomyces, positive phototropism, physical basis, 49
Plant growth hormone, action, 63
Polarized light, phototropic effect, 751
Potassium effect in distilled water, reversible loss, 105
— equilibrium in muscle, 629
— and sodium guaiacolates, distribution between guaiacol and water, 563
— — — —, electrical conductivity in guaiacol, 549
Potential, redox, in biological systems, apparatus, 1
Potentials, protoplasmic, in *Halicystis*, 109
Protein, denatured and native, theoretical consequences of equilibrium between, 399
—, native and denatured, theoretical consequences of equilibrium between, 399
Proteins, crystalline, absorption of pepsin, 165
— in solution, hydration, 365
— — —, molecular volume, 365
— — —, — weight, 365
Protoplasmic potentials in *Halicystis*, 109

RADIATION, mitogenetic, search for by means of photoelectric method, 843
Radium, beta and gamma rays, inactivating crystalline pepsin, 359
Rays, beta and gamma, from radium, inactivating crystalline pepsin, 359
Reaction, Blackman, order in photosynthesis, 145
Redox. *See* Oxidation; Reduction.
Reduction-oxidation potential in biological systems, apparatus, 1
Resistance, toxicity, and time of survival, relation between, and related phenomena, 409
Respiration, *Arbacia* eggs, 375
—, erythrocyte, influence of minimal narcotic doses, 791
Respiratory exchange, germinating castor bean, correlation of chemical analysis, 311
— metabolism, germinating castor bean, conversion of fat to carbohydrate, 283
— quotient, combustion, germinating castor bean, determined by modified oxycalorimeter, 303
Retina, relation between intensity and critical fusion frequency for different locations of, in intermittent stimulation by light, 251
Roentgen rays. *See* X-ray.

SALICYLATE solutions, equilibria between native and denatured hemoglobin in, and theoretical consequences of equilibrium between native and denatured protein, 399
Salts, sodium, of mineral acids, stimulation of *Fundulus* in sea water, 803
Seedlings, *Celosia cristata*, growth and duration of life at different temperatures, 763
Seedlings, *Cucumis melo*, growth at different temperatures, 687
Sodium and potassium guaiacolates, distribution between guaiacol and water, 563
— — — —, electrical conductivity in guaiacol, 549
— salts of mineral acids, stimulation of *Fundulus* in sea water, 803
Spectrum, ultraviolet absorption, of pepsin, 797
Stimulation, intermittent, by light, measurement of critical fusion frequency for human eye, 237
—, —, — —, relation between intensity and critical fusion frequency for different retinal locations, 251
—, —, — —, theoretical interpretation of quantitative data of flicker, 269
— of *Fundulus* by fatty acids in fresh water, 803
— — — by fatty acids in sea water, 803
— — — by hydrochloric acid in fresh water, 803
— — — by mineral acids in sea water, 803
— — — by sodium salts of mineral acids in sea water, 803

TEMPERATURE coefficients of oxygen consumption in eggs of *Arbacia punctulata*, and fertilization, 677
—, *Cucumis melo* seedling growth, effect on, of, 687
—, effect on growth and duration of life of *Celosia cristata* seedlings, 763
—, environmental, influence on utilization of food energy in baby chicks, 701
Tissues, diffusion of carbon dioxide, 657
Toxicity, resistance, and time of survival, relation between, and related phenomena, 409

Trypsin, active native, estimation in presence of inactive denatured, 159
—, — — and inactive denatured, equilibrium between, 393
—, crystalline, inactivation, 591
—, estimation with hemoglobin, 151
—, inactive denatured and active native, equilibrium between, 393
—, — —, estimation of active native trypsin in presence of, 159

ULTRAVIOLET absorption spectrum of pepsin, 797
— light, effect on photosynthesis, 135
— —, inactivating crystalline pepsin, 359

VISION, acuity, and intensity discrimination of *Drosophila*, 517

WATER, bound, determined by cryoscopic method, 327
—, —, in muscle, 783
—, —, methodical errors arising in determination, 83
— content, crystallizable egg albumin, effect upon rate of heat denaturation, 21
—, distilled, producing anesthesia, 87
—, —, reversible loss of potassium effect, 105
—, fresh, stimulation of *Fundulus* by fatty acids in, 803
—, —, — — *Fundulus* by hydrochloric acid in, 803
— and guaiacol, distribution of sodium and potassium guaiacolates between, 563
—, sea, stimulation of *Fundulus* by fatty acids in, 803
—, —, — — *Fundulus* by mineral acids in, 803
—, —, — — *Fundulus* by sodium salts of mineral acids in, 803

X-RAY survival curves of fungus, *Neurospora*, influence of death criteria, 577